

Fifth pair of legs with joint 3 slightly clavate and with a small rather abruptly rounded protuberance on the inner side just above the middle. The tubercle and adjacent surface are more densely pilose but the hairs not forming a distinct tuft.

Sixth pair of legs with joint 3 more strongly clavate and bending inward; a long, thick, bluntly rounded protuberance at the middle on the inner side with a tuft or brush of long hairs at the apex and on the inner face.

Seventh pair of legs with joint 3 still more crassate and arcuate, also with a protuberance on the inner side near the middle somewhat smaller than that of the previous pair of legs, and with a smaller brush of long hairs; also the surface of the joint along the sinus above the protuberance is coated with very short hairs extending from the base of the protuberance nearly to the end of the joint (see fig. 2).

On the sternum between the fourth and fifth pairs of legs is a very large, somewhat fungiform protuberance, bearing 2 tubercles directed forward and outward, a laterally directed tubercle on either side, and an apical broad, short tubercle directed slightly backward and with a large, deep pit or pore indenting the apex; the pore surrounded and crossed by very long hairs; also such hairs on the lateral and anterior tubercles.

*Locality and habitat:* Lu Shan district, Kiang-si province, Central China, south of Kiukiang; in moist humus near stream below the Yellow Dragon Temple, Kuling, altitude 4,000–4,500 feet. Numerous specimens were collected by O. F. Cook and H. F. Loomis, October 16, 1919. The type is in the U. S. National Museum.

BOTANY.—*New species of Passiflora from tropical America.*<sup>1</sup> ELLSWORTH P. KILLIP, National Museum.

Of the 13 species of *Passiflora* described herewith four are from Mexico and Central America, and are based upon material received by the National Museum since the publication of an earlier paper<sup>2</sup> by the writer. The remaining species have been detected in the course of a revision of the Passifloraceae of northern South America.

*Passiflora dioscoreaefolia* Killip, sp. nov.

Stem slender, subtriangular, sulcate, pubescent at nodes with a few hooked hairs, otherwise glabrous; stipules semi-ovate, 1 cm. long, 0.5 cm. wide, attenuate at apex, slightly undulate at margin; petioles up to 2.5 cm. long, finely pubescent with hooked hairs, biglandular about 3 mm. below apex, the glands short-stipitate, 2 mm. long, 2 mm. wide; leaves oblong-ovate, 8 to 10 cm. long, 4 to 5.5 cm. wide, entire, abruptly acuminate at apex, cordate at base (sinus about 5 mm. deep), 5 or 7-nerved, entire and slightly thickened at margin, membranous, sparsely pubescent with hooked hairs above, glabrous beneath; peduncles solitary or in pairs, up to 3 cm. long, 1-flowered, slightly pubescent with hooked hairs; bracts setaceous, 3 to 4 mm. long, scattered; flower 5 cm. wide (when expanded); sepals ovate-lanceolate, 2 cm.

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<sup>2</sup> Journ. Washington Acad. Sci. 12: 255–262. 1922.

long, 1 cm. wide at base, slightly cucullate at apex, greenish-white (?) and slightly pubescent without, white, longitudinally striate with deep purple within; petals oblong or oblong-spatulate, about 1.2 cm. long, 0.6 cm. wide, obtuse, white, marked like the sepals; filaments of faucial corona in a single series, filiform, 1.5 cm. long, white, spotted with deep purple; middle corona plicate, the margin lobulate, slightly incurved; basal corona saucer-shaped, 2 mm. high, crenulate at margin; gynophore and stamens mottled and streaked with deep purple; ovary narrowly ovoid, short-stipitate, glabrous.

Type in the U. S. National Herbarium, no. 1,167,023, collected at La Palma, Costa Rica, July 8, 1923, by H. E. Stork (no. 436).

The flowers of this species and the presence of glands at the apex of the petioles indicate relationship with *P. bryonioides*, *P. heydei*, and *P. pringlei*. It is distinguished from all the species of that group by its entire leaves.

#### *Passiflora podadenia* Killip, sp. nov.

Stem subquadrangular, sulcate, hispidulous; stipules semi-ovate, 10 mm. long, 6 to 7 mm. wide, cuspidate at apex; petioles up to 5 cm. long, hispid-hirsute, biglandular below the middle (glands pyriform, 1.5 mm. thick, borne on long slender hispidulous stalks 6 to 7 mm. long); leaves 4 to 6 cm. long, 5 to 7 cm. wide, deeply 3-lobed (middle lobe oblanceolate, 2 to 2.5 cm. wide, narrowed toward base, short-acuminate), deeply cordate at base, 5 or 7-nerved, subentire toward ends of lobes, coarsely dentate near base, hispidulous with pellucid hairs, dark green above, paler beneath; peduncles in pairs, about 2 cm. long; bracts linear-attenuate, 4 mm. long, 0.6 to 0.9 mm. wide, entire; flowers 3 to 3.5 cm. wide, white, spotted and streaked with dark purple; sepals ovate-lanceolate, about 15 mm. long, 8 mm. wide, slightly cucullate at apex; petals oblong or oblong-spatulate, 7 to 10 mm. long, 3 mm. wide, obtuse; filaments of faucial corona in a single series, narrowly linear, 1 cm. long; middle corona erect, 3 mm. high, white, the margin incurved, minutely denticulate; basal corona membranous, adnate to flower tube, the margin erect; ovary ovoid, tapering at apex, stipitate, hispidulous, at length glabrate.

Type in the U. S. National Herbarium, no. 1,166,599, collected at the Hacienda San Antonio, Colima, Mexico, altitude 1,200 meters, September, 1923, by B. P. Reko (no. 4839).

The long, slender stalks of the glands at once distinguish this species from its nearest relatives of the subgenus *Plectostemma*. The shape of the leaves and general aspect of the plant suggest *P. bryonioides* H. B. K. *Passiflora adenopoda* DC. likewise has long-stalked glands, but the lacerate bracts, differently shaped leaves, and larger flowers at once prevent possibility of confusion with *P. podadenia*.

#### *Passiflora miraflorensis* Killip, sp. nov.

Stem terete below, subquadrangulate above, densely pubescent; stipules narrowly linear or setaceous, up to 7 mm. long, falcate; petioles up to 1.5 cm. long, glandless; leaves semiorbicular in general outline, 5 to 6 cm. long (midrib), 6 to 8 cm. wide (between tips of lobes), 2 or 3-lobed (middle lobe shorter than lateral lobes; lobes ovate-lanceolate, acute, cuspidate), cordate at base, membranous, dark green and sparsely hirtellous above, paler and

densely appressed pubescent beneath; peduncles 1 to 1.5 cm. long; bracts borne near the middle of the peduncle, 3 to 4 mm. long, entire or bifurcate; flowers about 2.5 cm. wide, greenish yellow; sepals linear-lanceolate, 10 to 12 mm. long, 3 to 4 mm. wide at base; petals linear, about 5 mm. long; filaments of faucial corona in 2 series, the outer filiform, 4 to 6 mm. long, radiate, the inner narrowly linear, 1.5 mm. long, erect; middle corona closely plicate; basal corona annular; ovary globose densely pilose-hirsute with white or yellowish hairs; fruit depressed-globose, 0.8 cm. long, 1 cm. wide, densely pubescent; seeds obovoid, 3 to 4 mm. long, 2 mm. wide, transversely 6 or 7-grooved, the ridges rugulose.

Type in the U. S. National Herbarium, no. 1,141,393, collected at "Miraflores," in the Central Cordillera, east of Palmira, Department of El Valle, Colombia, altitude 2,100 meters, May 27, 1922, by E. P. Killip (no. 6135).

The foliage of this plant very closely resembles that of *P. rubra* and *P. capsularis*. The presence of bracts, the small fruit, and the rugulose ridges of the testa of the seeds show that it is far removed from that group, however.

#### *Passiflora laticaulis* Killip, sp. nov.

Plant glabrous throughout; stems strongly flattened, grasslike, 3 to 6 mm. wide, scabrous at margin; stipules setaceous, 2 to 2.5 mm. long; petioles filiform, 1 to 1.5 cm. long, glandless; leaves 2-lobed (a vestige of an intermediate lobe occasionally present, the lateral lobes divaricate at an angle of nearly 180°, linear or lanceolate, acute or acuminate, mucronulate), up to 1.5 cm. long (along midrib) and 8 cm. wide (between tips of lateral lobes), subpeltate at base, membranous, ocellate beneath, light green when dry; peduncles filiform, up to 5 cm. long; flowers up to 3 cm. wide; sepals linear-lanceolate, 1.5 cm. long, 0.5 cm. wide, obtuse, greenish-yellow; petals linear-lanceolate, 1 cm. long, 0.3 to 0.4 cm. wide, obtuse, white; filaments of faucial corona in 2 series, the outer filiform, 1 cm. long, the inner narrowly linear, capitellate, 4 mm. long; middle corona slightly plicate, white; basal corona reduced to a very low, hardly conspicuous ring, close to the base of the middle corona; ovary ovoid, glabrous; fruit globose, up to 1.2 cm. in diameter; seeds obovoid, 2.5 to 3 mm. long, 1.5 to 2 mm. wide, transversely 5 or 6-grooved.

Type in the herbarium of the New York Botanical Garden, collected on a grassy bank, near "Susumuco," southeast of Quetamé, Department of Cundinamarca, Colombia, altitude 1,100 to 1,500 meters, September 5, 1917, by F. W. Pennell (no. 1723).

This species is at once recognized by its broad grasslike stems. The general shape of the leaves and structure of the flower indicate relationship with *P. misera* and *P. erubescens*, but those species have nearly terete stems and rounded leaf lobes. From *P. erubescens* it is further distinguished by its much larger flowers and longer peduncles.

#### *Passiflora standleyi* Killip, sp. nov.

Herbaceous vine; stem subquadrangular, striate, glabrous below, minutely pubescent above; stipules narrowly linear-falcate, 2 mm. long, 0.3 mm. broad; petioles 1.5 to 2.5 cm. long, glabrous, glandless; leaves oblong, bilobed one-half to two-thirds their length, 2.5 to 5 cm. long along midnerve, 6 to 12 cm.

along lateral nerves, 4 to 5 cm. wide between apices of lobes (lobes lanceolate, 1.5 to 2 cm. wide, obtuse or acutish, apiculate), rounded or subcuneate at base, 3-nerved, ocellate, reticulate-veined, glabrous; peduncles slender, 2 to 3 cm. long, glabrous; bracts setaceous, 2 to 3 mm. long, borne within 1 cm. of apex of peduncle; flowers 3 to 4 cm. wide, bluish purple; sepals ovate-lanceolate, 1 to 1.5 cm. long, 4 to 5 mm. wide, obtuse, membranous; petals half as long as sepals, obtuse, membranous; filaments of faucial corona capillary, in two series, those of the outer 4 to 7 mm. long, blue at base, white, spotted with blue at apex, those of the inner very numerous, 4 to 5 mm. long, white; middle corona membranous, closely plicate, minutely fimbriate at margin; basal corona annular, 1 mm. high; gynophore 0.6 to 1 cm. high, glabrous; anthers pale yellow; ovary subglobose, glabrous; styles filiform, 5 mm. long; stigmas reniform, 1 mm. wide.

Type in the U. S. National Herbarium, no. 1,138,548, collected on the Volcán de San Salvador, Salvador, at an altitude of about 1,000 meters, April 7, 1922, by Paul C. Standley (no. 22821). Specimens collected at the same locality by Calderón (April, 1922), and on the Volcán de San Vicente (Standley 21475) are also to be referred to this species.

The foliage of *Passiflora standleyi* resembles that of *P. ornithoura*, likewise found in Salvador by Mr. Standley, and of *P. tuberosa*, a native of Trinidad and northern South America. From these species it differs in its bluish purple flowers and the elongate filiform filaments of the outer corona. Both *P. ornithoura* and *P. tuberosa* have white flowers with short strapshaped filaments. *Passiflora standleyi* is distinguished from *P. salvadorensis* by its proportionally narrower leaves and a totally dissimilar coronal structure. Vernacular name: *calzoncillo*.

#### *Passiflora cobanensis* Killip, sp. nov.

Stem slender, 4 or 5-angulate, finely pubescent with curved, grayish hairs; tendrils weak, densely pubescent; stipules lanceolate, subfalcate, 8 to 9 mm. long, 1.5 to 2 mm. wide, acuminate, conspicuously 5 to 7-nerved; petioles 8 to 10 mm. long, glandless, pubescent; leaves ovate-lanceolate, 7 to 10 cm. long, 2.5 to 3.5 cm. wide, unlobed, acuminate, rounded at base, entire at margin, 3-nerved, faintly reticulate-veined, without ocellae, membranous, glabrous and sublustrous above, finely pubescent beneath with curved grayish-brown hairs; peduncles 1.5 cm. long; bracts not seen; flowers about 2.2 cm. wide, greenish; sepals linear-lanceolate, 10 mm. long, 2 mm. wide, acute, pubescent without; petals lanceolate, 5 mm. long, 2 to 3 mm. wide, obtuse, greenish; filaments of faucial corona in a single series, linear-clavate, 2.5 mm. long; middle corona membranous, plicate; basal corona annular; ovary obovoid, subangulate, densely tomentellous; styles filiform, sparingly pilosulous; stigmas reniform, finely pubescent.

Type in the U. S. National Herbarium, no. 1,083,984, collected between Chamá and Cobán, Department of Alta Verapaz, Guatemala, at an altitude of 950 meters, July 26, 1920, by Harry Johnson (no. 411).

The exact position which this species occupies in the subgenus *Plectostemma* is difficult to determine. The absence of glands either on the petiole or in the form of ocellae on the leaf blades suggests its relationship with *P. capsularis*, *P. rubra*, *P. rovirosae*, and *P. costaricensis*. The only other entire-leaved



species of this subgenus from Central America, *P. auriculata*, *P. lancearia*, and *P. dioscoreaefolia*, differ markedly in floral characters, as well as in the shape of the leaves.

There is a specimen in the National Herbarium, collected near San José, Costa Rica, by H. Pittier (Inst. Phys.-Geog. Costa Rica 16675), which closely resembles *P. cobanensis* but its leaves are unequally 2-lobed to below the middle. The lobes are lanceolate, acuminate, 1.5 to 2 cm. wide, the distance between the tips of the lobes being about 7 cm. Possibly *P. cobanensis* is a species with dimorphic leaves, similar, in this respect, to *P. praeacuta* and *P. dispar* of South America.

#### *Passiflora gracillima* Killip, sp. nov.

Plant glabrous throughout; stem slender, subterete below, angulate above; stipules setaceous, 2.5 to 3 mm. long; petioles up to 3 mm. long, bearing at apex 2 minute sessile glands; leaves oblong or ovate-oblong, 2.5 to 5 cm. long, 2 to 3.5 cm. wide, unlobed, rounded or occasionally subemarginate at apex, truncate at base, entire at margin, 1-nerved, reticulate-veined, subcoriaceous, dark green and lustrous above, green or subglaucous beneath; peduncles solitary in the axils of the leaves, 2 to 4 cm. long, very slender, bearing at apex 2 pedicelled flowers, and terminating in a slender tendril; flowers 1.5 to 2 cm. wide, greenish-yellow; sepals linear-lanceolate, 10 mm. long, 3 mm. wide, obtuse; petals 7 to 8 mm. long, 2 mm. wide; filaments of faucial corona in 2 series, those of the outer filiform, 4 to 5 mm. long, the inner capillary, 1.5 mm. long; middle corona plicate, erose at margin; basal corona cupuliform, 1 mm. high; ovary ovoid, obscurely 6-angled; fruit ellipsoidal, 3 cm. long, about 1.3 cm. in diameter, 6-angled.

Type in the U. S. National Herbarium, no. 1,141,457, collected at "Pinares," above Salento, Department of Caldas, Colombia, altitude 2,900 to 3,200 meters (Central Cordillera), August 3, 1922, by F. W. Pennell (no. 9393). Additional specimens were collected at the same locality by Dr. Pennell, under the numbers 9224 and 9317.

This species belongs to the small group of passion flowers with a 2-flowered peduncle which terminates in a tendril. It is most closely related to *P. tryphostemmatoides* Harms, differing in its oblong leaves, elongate peduncles, and ellipsoidal rather than ovoid, fruit. The filaments of the faucial corona, moreover, are in 2 series, not in a single series.

#### *Passiflora gleasoni* Killip, sp. nov.

Plant glabrous throughout, except bracts and ovary; stipules setaceous, 8 mm. long, early deciduous; petioles up to 2 cm. long, biglandular about 5 mm. below apex, the glands sessile, 2 mm. in diameter; leaves oblong, up to 16 cm. long, and 9 cm. wide, abruptly acuminate at apex, truncate at base, remotely and shallowly glandular-serrulate, or subentire, subcoriaceous, lustrous above; peduncles up to 5 cm. long; bracts oblong-elliptic, about 2 cm. long, 4 to 5 mm. wide, cuspidate-acuminate, glandular-serrate at apex, finely puberulent on both surfaces, reddish (when dry); flowers about 8 cm. wide; sepals lanceolate, 3 to 3.5 cm. long, about 1 cm. wide, obtuse, not awned at apex; petals linear, 2 cm. long, 0.5 cm. wide, obtuse, much thinner

than sepals; filaments of faucial corona in 3 series, those of the two outer capillary, 4 to 5 cm. long, those of the third series linear, 1 mm. long; middle corona membranous, 7 to 8 mm. high, inflexed from base, the upper third lacerate-cleft; secondary middle corona a low annular ridge; basal corona borne close to base of gynophore, barely 2 mm. high, the margin denticulate; stamens oblong, 7 mm. long, 4 mm. wide; ovary ovoid, finely ferruginous-tomentellous.

Type in the U. S. National Herbarium, no. 1,123,194, collected along the Pomeroon River, Pomeroon District, British Guiana, January 14-20, 1923, by J. S. de la Cruz (distributed by H. A. Gleason, no. 2963). There is also a specimen of this collection in the herbarium of the New York Botanical Garden.

The foliage of this species resembles that of *P. nitida* H. B. K., but the bracts and flowers are much different. *Passiflora nitida* has larger, rounded bracts, and the outer filaments of its faucial corona are thick and fleshy. In *P. gleasoni* the bracts are much narrowed at both ends, resembling those of *P. vitifolia*, and the corona filaments are extremely slender.

#### *Passiflora capparidifolia* Killip, sp. nov.

Plant glabrous throughout, except bracts and ovary; stem terete or nearly triangular above; stipules narrowly linear, 6 to 7 mm. long, 0.5 mm. wide, acute, subcoriaceous; petioles up to 8 mm. long, biglandular at apex, the glands sessile; leaves oblong, 8 to 10 cm. long, 2.5 to 3 cm. wide, rounded and mucronulate at apex, rounded or subcuneate at base, 1-nerved, reticulate-veined, thick-coriaceous, lustrous; bracts 3 to 3.5 cm. long, 2 cm. wide, obtuse and often cleft at apex, slightly narrowed at base, slightly glandular toward apex, about 7-nerved, glabrous and sublustrous without, finely puberulent within; flowers 8 to 10 cm. wide; sepals lanceolate, about 4 cm. long, 1 cm. wide, obtuse, slightly keeled toward apex (keel terminating in a murco 2 mm. long), subcoriaceous; petals linear-oblong, 2.5 to 3 cm. long, 1.5 cm. wide, obtuse, white (?), conspicuously nerved, thin-membranous; filaments of faucial corona in several series, the outermost filiform, 1.5 to 2 cm. long, those of the second series compressed, 3.5 to 4 cm. long, 1.5 to 2 mm. wide, attenuate, white, banded with violet, the succeeding series composed of tubercles or of minute threads barely 0.5 mm. long; middle corona membranous, the margin entire, incurved; basal corona annular; gynophore enlarged about 4 mm. above base; ovary ellipsoidal, finely white-tomentellous.

Type in the U. S. National Herbarium, no. 1,122,154, collected on bank of the Potaro River, Tumatumari, British Guiana, July 4-6, 1921, by H. A. Gleason (no. 328). An additional sheet of this collection is in the herbarium of the New York Botanical Garden.

Allied to *P. laurifolia* this species is distinguished by its much narrowed, more obtuse leaves, and by the more slender threads of the outer two series of the faucial corona. The floral structure of *P. capparidifolia* is also much like that of *P. oblongifolia* Pulle, of Surinam, known to the writer only from description. The leaves of that species apparently are much different and the flowers are said to be borne on long pedicels in elongate racemes.

***Passiflora pedata stipularis* Killip, subsp. nov.**

Stipules spatulate, 8 to 12 mm. long, 5 to 7 mm. wide, the margin fimbriate-lacerate nearly to base; otherwise like *P. pedata* L.

Type in the U. S. National Herbarium, no. 1,187,263, collected in the vicinity of Mene Grande, State of Zulia, Venezuela, October 31, 1922, by H. Pittier (no. 10609).

*Passiflora pedata*, because of its pedately parted leaves and fimbriate bracts, is distinct from all other species of *Passiflora*. The specimen collected by Mr. Pittier apparently is identical in leaf shape, flower structure, and form of the bracts with *P. pedata*, but the stipules are foliaceous and deeply fringed. In typical *P. pedata* they are setaceous, barely 5 mm. long.

***Passiflora pennellii* Killip, sp. nov.**

Plant glabrous throughout; stem slender, terete, or subangulate above; stipules subreniform, 9 to 10 mm. long, 4 to 5 mm. wide, aristate, coriaceous, reticulate-veined; petioles up to 2.5 cm. long, 6 to 8-glandular (glands stipitate, 1.5 mm. long); leaves 5 to 7 cm. long, 7 to 10 cm. wide, 3-lobed to 1 or 1.5 cm. from the base (lobes lanceolate, 1 to 2 cm. wide, acute or obtusish, glandular in the sinuses, the middle lobes narrowed at base), subpeltate and subtruncate or subcordate at base, 5-nerved, reticulate-veined, coriaceous, green on both surfaces, shining above; peduncles up to 5 cm. long; bracts ovate-lanceolate, 8 to 10 mm. long, 3.5 to 5 mm. wide, acute, slightly narrowed at base, borne about 8 mm. below base of flower; flowers 5 to 6 cm. wide; sepals oblong-lanceolate, 1.5 to 1.8 cm. long, 7 to 8 mm. wide, obtuse, aristate outside just below apex, reticulate-veined, green without, white within; petals oblong-lanceolate, 1.8 to 2 cm. long, 1 cm. wide, obtuse, white; filaments of faucial corona white, in several series, the two outer narrowly liguliform, 2 to 2.5 cm. long, 0.8 mm. wide, the succeeding 2 or 3 series narrowly ligulate, 5 to 6 mm. long, 0.4 mm. wide; middle corona 6 to 7 mm. long, the lower half membranous, deflexed the upper half erect, filamentose; basal corona cupuliform, 1 mm. high, crenulate at margin; ovary ovoid.

Type in the herbarium of the New York Botanical Garden, collected on a moist slope in forest near "Susumuco," southeast of Quetamé, Department of Cundinamarca, Colombia, altitude 1,200 to 1,400 meters, September 5, 1917, by F. W. Pennell (no. 1729).

The only Colombian species with which this might be confused is *P. trisulca* Mast. The shape of the leaves and stipules of the two are evidently very similar. The leaves, however, are much smaller and are not glaucescent beneath. A more important point of difference lies in the middle corona. In *P. trisulca* this is said to be plicate, and on this basis the species was placed in the subgenus *Plectostemma*. The middle corona of *P. pennellii* is not plicate, its general structure indicating close relationship with *P. stipulata*, *P. pruinosa*, *P. cyanea*, and *P. choconiana*. Of these species it resembles *P. choconiana*, of Guatemala, most closely, differing in narrower leaf lobes, the absence of a glaucous hue on the under surface of the leaves, the broader outermost corona filaments, and the shorter and stouter gynophore.

*Passiflora hastifolia* Killip, sp. nov.

Plant densely hirsute throughout (except flowers) with stiff white hairs; stem terete; stipules subreniform, 1.2 to 1.5 cm. long, 0.5 to 0.6 cm. wide, aristate, coarsely dentate at base, subentire above; petioles up to 3 cm. long, bearing 2 to 4 stipitate glands about 1.5 mm. long; leaves 4 to 7 cm. long, 6 to 9 cm. wide, hastately 3-lobed (lobes acute, the middle lobe ovate-lanceolate, 2 to 3 times as long as the lateral lobes, 2 to 3.5 cm. wide, the lateral lobes divergent), subcordate, 5-nerved, minutely denticulate or subentire, membranous; peduncles not seen; bracts ovate, 1 to 1.3 cm. long, about 0.7 cm. wide, acute, glandular-serrate; flowers about 5 cm. wide; sepals 1.5 to 2 cm. long, 0.6 to 0.7 cm. wide, corniculate at apex, dark green without, white at margin, white within; petals oblong-lanceolate, 1 to 1.5 cm. long, 0.4 to 0.5 cm. wide, obtuse, white; filaments of faucial corona filiform, in several series, the outer 1 to 1.2 cm. long, pink at apex, white at middle, purple at base, the succeeding 4 or 5 series composed of numerous purple filaments 3 to 5 mm. long; middle corona inflexed at base, membranous below, filamentose above, the filaments erect; basal corona membranous, closely surrounding base of gynophore; ovary ovoid, glabrous, pruinose.

Type in the U. S. National Herbarium, no. 1,157,294, collected at Milliguaya, North Yungas, Bolivia, altitude 1,300 meters, December, 1917, by O. Buchtien (no. 4356).

Resembling *P. menispermiifolia* H. B. K. and *P. nephrodes* Mast. in its dense pubescence and the general structure of the flower, this species is at once distinguished by its hastate leaves and its broad, ovate—not narrowly elliptic—bracts.

*Passiflora buchtienii* Killip, sp. nov.

Plant glabrous throughout; stem slender, wiry, 4 or 5-angular; stipules narrowly elliptic, 1 to 1.5 cm. long, 2 to 3 mm. wide, incised-serrate, the serrations cuspidate; petioles very slender, up to 1.5 cm. long, biglandular below middle, the glands 0.5 mm. long; leaves 2 to 3 cm. long, 2.5 to 4 cm. wide, 3-lobed to just below middle (lobes oblong, 6 to 8 mm. wide, cuspidate), rounded or slightly cuneate at base, 3-nerved, finely cuspidate-serrate, membranous; peduncles up to 2.5 cm. long, stout; bracts oblong, 1 to 1.5 cm. long, 5 to 6 mm. wide, obtuse, incised-serrate; flowers scarlet, the tube cylindric, 1.5 cm. long, 8 mm. wide at the slightly enlarged throat; sepals linear-lanceolate, about 5 cm. long, 6 mm. wide, slightly cucullate at apex, aristate just below apex (awn 6 mm. long); petals linear, about 4 cm. long, 5 mm. wide, obtuse; faucial corona 2-ranked, the outer rank filamentose (filaments 5 mm. long), the inner cylindric, 6 mm. long, membranous, the upper half lacerate-cleft; middle corona membranous, 6 mm. long, attached just below middle of tube, dependent, the margin retrorse, denticulate; basal corona none; gynophore slender, 4 cm. long; ovary narrowly ellipsoid.

Type in the U. S. National Herbarium, no. 1,157,302, collected at Unduavi, North Yungas, Bolivia, altitude 3,300 meters, November, 1910, by O. Buchtien (no. 6004). Another specimen, no. 2896, possibly of the same collection, has also been examined.

*Passiflora buchtienii* belongs to the subgenus *Distephana*, its nearest relative being *P. vitifolia*. Its smaller, glabrous leaves, minute petiolar glands, the shape of its bracts and stipules, and the structure of the coronas at once distinguish it from *P. vitifolia*.



*Passiflora retrorsa* Killip, sp. nov.

Shrub (?); branches subquadrangular, the bark grayish, the older branches bearing at each node a spine-like retrorse appendage 1 to 1.5 cm. long, presumably an abortive tendril; branchlets finely puberulent; stipules setaceous, early deciduous; petioles 2 to 4 (or more?) mm. long, biglandular at apex, the glands sessile; main leaves not seen; branch leaves oval, 2.5 to 3.5 cm. long, 1.5 to 3 cm. wide, rounded at apex, rounded and slightly conduplicate at base, entire, penninerved, reticulate-veined, coriaceous, glabrous; peduncles solitary, 1 cm. long or less, finely puberulent; bracts not seen; flowers borne on elongate few-leaved axillary branches 15 to 35 cm. long, scarlet, the tube cylindric, 2 to 3 cm. long, 0.3 to 0.4 cm. wide, finely puberulent; sepals oblong, about 1.5 cm. long, 0.4 cm. wide, obtuse; petals oblong, 1 to 1.3 cm. long, 0.4 cm. wide, obtuse; filaments of faucial corona in 2 series, those of the outer subfalcate, 4 mm. long, acuminate, verrucose along one side, those of the second series filiform, 0.8 mm. long, capitellate; middle corona tubulate, 1 cm. long, arising about 2 mm. above base of flower, lacerate-cleft half its length; basal corona none; gynophore slender, up to 3 cm. long; ovary elliptic, finely puberulent, longitudinally 3-grooved; styles distinct to base, arising at summit of each ridge of ovary.

Type in the herbarium of the Academy of Natural Sciences, Philadelphia, no. 560,954, collected at Vuelta Triste, Rio Manimo, Orinoco Delta, Venezuela, February 20, 1911, by F. E. Bond, T. S. Gillin, and S. Brown (no. 147).

This species is to be referred to the subgenus *Astrophea*, its closest relatives being *P. spicata* of Brazil and *P. spinosa* of Brazil and Peru. In *P. spicata* the flowers are borne in leafless racemes which are shorter than the leaves of the main stems; the leaves are 10 to 15 cm. long; and the flowers are larger, though of similar structure. In *P. spinosa* not only are the leaves and flowers much larger but the faucial corona filaments are subulate.

This may be the same as the British Guianan plant to which Klotzsch gave<sup>3</sup> the name *Tacsonia spinescens*, a nomen nudum.

PROCEEDINGS OF THE ACADEMY AND AFFILIATED  
SOCIETIES

THE PHILOSOPHICAL SOCIETY

888TH MEETING

The 888th meeting was held at the Cosmos Club Auditorium on Saturday, October 6, 1923, with President White in the chair and 40 persons present.

Program: F. WENNER and A. W. SMITH: *The measurement of low resistances by the Wheatstone Bridge*. (Presented by Mr. Wenner.) It was illustrated with lantern slides and was discussed by MESSRS. HAWKESWORTH, CRITENDEN, and TUCKERMAN.

The paper gives a procedure that leads to a fairly high accuracy in the measurement of resistances as low as 0.01 or even 0.001 ohm with the Wheatstone bridge. It is pointed out that if a low resistance is to be definite it must have distinct current and potential terminals. An essential feature in the procedure consists in making the potential terminals of the low resistance two of the branch points of the bridge, to one of which a battery lead is con-

<sup>3</sup> Schomburgk, *Reisen in Guiana* p. 1168. 1848.